U8960-2

ueber

Utah Economic and Business Review

Volume 50
Number 9
September 1990

BEBR

graduate school
of business
bureau of economic and
business research
university of utah

UTAH'S ELECTRONICS INDUSTRY

James A. Wood, Research Analyst

A study of Utah's electronics industry was completed in 1990 by the Bureau of Economic and Business Research for the Utah Division of Business and Economic Development.[1] A major objective of the study was to develop an economic profile of Utah's electronics industry including an analysis of the industry's economic impact on the state, its employment trends, chronology of development and industrial structure. This economic profile, along with a discussion of Utah's most significant locational advantage for the industry, i.e., favorable labor market conditions, are included in the following article.

Unless otherwise noted, the term Electronics Industry is defined as companies within the three-digit Standard Industrial Classifications of 357 and 367 as determined by the U.S. Office of Management and Budget, see below:

357 Computer and Office Equipment
- 3571 Electronic Computers
- 3572 Computer Storage Devices
- 3575 Computer Terminals
- 3577 Computer Peripheral Equipment, nec
- 3578 Calculating and Accounting Equipment
- 3579 Office Machines, nec

367 Electronic Components and Accessories
- 3671 Electron Tubes
- 3672 Printed Circuit Boards
- 3674 Semiconductors and Related Devices
- 3677 Electronic Coils and Transformers
- 3679 Electronic Components, nec

A PROFILE OF UTAH'S ELECTRONICS INDUSTRY

Utah's electronic industry is comprised of 71 companies engaged in manufacturing activities that make a substantial contribution to the economic base of the state. In 1989 these companies employed more than 11,400 workers, about 1 out of every 10 manufacturing employees and paid over $347 million in wages and salaries. The average

[1] "Electronics Target Industry Study"

annual 1989 wage rate for the industry in Utah was $30,375; considerably higher than the state's average manufacturing wage rate of $24,108 and more than 60 percent higher than the state's average nonagricultural wage rate of $18,696.

High wages enhance the industry's economic contribution to the Utah economy as measured by direct and total economic impacts. In the case of income, direct impacts are measured as the wages and salaries paid by the electronics industry; whereas the total economic impact includes not only the wages and salaries of the industry but also the wages and salaries generated when employees of electronics companies spend their income on household consumption. This "multiplier effect" of 1.9 means that $1 of income paid to an employee of an electronics company translates into $1.90 in total income impact.

Estimating the employment "multiplier effect" requires a similar methodology. The total income and employment impacts of the electronics industry are given below:

The Economic Impact of Utah's Electronics Industry

Direct Employment (1989)[2]	11,442
Direct Wages and Salaries (1989)[2]	$347.5 million

Total Direct and Indirect Economic Impact Measured by Employment and Income Multiplier[3]

Income Multiplier of 1.9
Total Direct and Indirect Income
1.9 X $347.5 million = $660.3 million

Employment Multiplier of 2.33
Total Direct and Indirect Employment
2.33 X 11,442 = 26,659

Average Annual Wage in Utah (1989)[4]

Electronics Industry	$30,375
Manufacturing Sector	$24,108
Nonagricultural Wage	$18,696

Employment Trends

Since 1973 employment in the electronics industry in Utah has increased from 4,800 to 11,400 employees but the growth has not been a steady ascent. Electronics employment grew each year from 1973 to 1984 when the industry reached its peak employment of 15,500; but in 1985 as the U.S. electronics industry entered an era of heightened foreign competition, aggressive pricing and shorter product cycles, employment began to decline both nationally and locally.

Although the recent sluggish performance of Utah's electronics industry reflects national trends, the rate of employment decline in the state has been more precipitous than that experienced by the industry nationally. Between 1984 and 1988 (the most recent national data) U.S. electronics employment declined only 8.1 percent compared to a 26.2 percent drop in Utah over the past five years, (Table 1 and Chart 1).

The cause of Utah's accelerated employment decline lies in the structure of the state's electronics industry. Utah's electronics industry is particularly vulnerable to foreign competition and recently released data show just how serious the impact of foreign competition has been on the industry. Since 1979 the U.S. factories' share of the U.S. computer and semiconductor markets has fallen from more than 90 percent to about 65 percent.[5] As foreign competition has chipped away at market share, electronics companies have reacted by cutting the number of production employees. States like Utah, where a large percentage of the electronics workers have been engaged in production activities of computers and semicondutor devices, have experienced disproportionate employment declines.

---

[2] Utah Department of Employment Security.

[3] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Input/Output Modeling System.

[4] U.D.E.S.

[5] U.S. Department of Commerce, Semiconductor Industries Association, Electronic Industries Association.

Table 1
Employment Growth in Utah's Electronics Industry
(SIC 357, 367)

Year	SIC 357	SIC 367	Total
1973	2,979	1,862	4,841
1974	3,421	2,392	5,813
1975	3,550	2,550	6,100
1976	3,652	2,728	6,380
1977	3,924	2,995	6,919
1978	4,310	3,644	7,954
1979	5,047	4,446	9,493
1980	5,607	5,473	11,080
1981	6,220	5,983	12,203
1982	6,714	5,772	12,486
1983	7,564	5,352	12,916
1984	8,672	6,829	15,501
1985	8,823	5,757	14,580
1986	8,618	5,738	14,356
1987	8,343	5,224	13,567
1988	6,670	5,756	12,426
1989[a]	2,756	8,686	11,442

[a]Prior to 1989 Unisys was included in SIC 357. In 1989 Unisys was moved to SIC 367, which explains the large employment swing between these two SIC categories.

Source: Utah Department of Employment Security, Volume III, *Labor Market Information*.

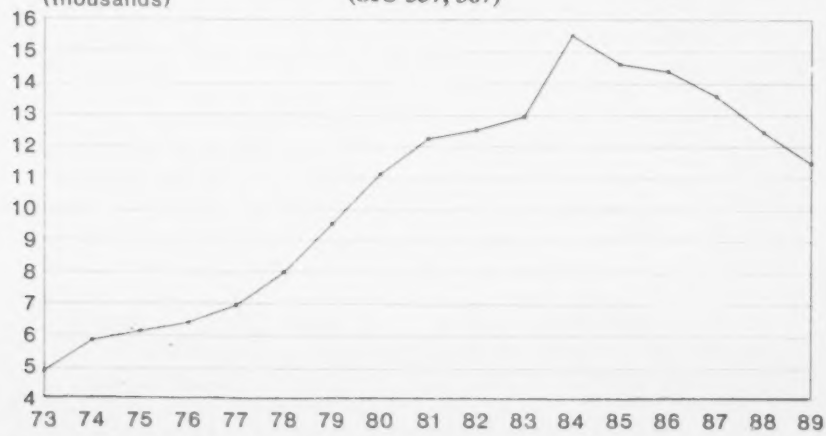
Location of Electronics Companies in Utah

The beginnings of Utah's electronics industry can be traced to Varian-Eimac, which opened a radio tube plant in 1941 under the name of Eitel-McCullough (Eimac). During World War II Eimac's employment peaked at 1,700. The company's name change following its purchase in the 1960's by Varian Associates of California. Today, Varian-Eimac employs 1,000 people and continues nearly 50 years of operation in the state. Varian-Eimac's Utah facility produces the world's most advanced x-ray tubes as well as tubes for the broadcast industry and ham radios.

Eimac with original headquarters in San Bruno, California, was the first national company to locate an electronics manufacturing facility in Utah. Most of the major electronics employers in the state are national companies that have located manufacturing facilities. Following Eimac's lead, Sperry-Univac (now Unisys) located in Utah in 1956. Ten years later Signetics Inc., a semiconductor manufacturer, located in Provo. In 1977 National Semiconductor selected West Jordan as a site and in 1979, Bourns Incorporated located facilities in Ogden and Logan.

Evans & Sutherland, which began operations in 1968, was the first major "home grown" electronics company. The only other "home grown" company

Chart 1
Employment Growth of Utah's Electronic Industry, 1973-1988
(SIC 357, 367)



Utah Department of Employment Security, years as indicated.

with more than 100 employees is Iomega, which began operations in 1980.

The chronology of establishment or location of Utah's major electronics companies shows that seven of the 15 electronics companies that now employ more than 100 people were established in Utah between 1977 and 1983, Table 2. From 1983 to 1989 there were no additions to the list of Utah's major electronics employers; a consequence of the industry's slow growth and limited new plant expansions during the mid-1980's. In 1989, however, two national companies selected Utah as a location for new manufacturing facilities for the assembly of printed circuit boards; Everex in St. George and Compaq in Salt Lake County.

Table 2
Chronology of Utah's Major Electronics Industry
(Over 100 Employees)

Company	Year Located in Utah
Home Grown	
Evans & Sutherland	1968
Radix	1969
DOD Digitech Electronics	1978
Lundahl Inc.	1980
Iomega	1980
Salt Lake Circuits	1983
National Expansions	
Varian-Eimac	1941
Unisys	1956
EDO Western	1958
Signetics	1966
National Semiconductor	1977
Sensor Controls	1979
Bourns Network	1980
Everex	1989
Compaq	1989

Source: Bureau of Economic and Business Research.

The Structure of the Electronics Industry In Utah

Utah's electronics industry is characterized by employment concentration in a few large firms. Of the 71 electronics companies in the state, there are only seven with more than 500 employees. These seven firms account for nearly 80 percent of total employment among all electronics companies, Table 3.

The employment in Utah's electronics industry is most heavily concentrated in the production of semiconductor devices. This subsector's share of electronics employment has remained nearly constant since 1982. At that time 27.6 percent of the employees in Utah's electronics industry were employed in semiconductor manufacture compared to 27.0 percent in 1989, Table 4.

In sharp contrast the share of electronics employment in the manufacture of computers in Utah has declined significantly from 35.2 percent in 1982 to only 12.8 percent in 1989. Beehive International, Sperry Univac and Applied Digital Data Systems were all producing computers and/or computer terminals in 1982. By 1989 Beehive International was in bankruptcy and had ceased production of equipment; Applied Digital Data Systems was out-of-business in Utah; and Sperry Univac had merged with Burroughs to form Unisys, which shifted the function of Unisys' Utah operation from computers and terminals to integrated systems, software development and printed circuit board assembly. Consequently the employment in the manufacture of computers has dropped significantly in the state. Evans & Sutherland is now the largest producer of computer systems in Utah.

Employment Distribution by States

Given the small size of the Utah economy Utah's share of employment is, as expected, relatively small. In 1988 Utah had less than 2 percent of total industry employment in electronic computers and semiconductors.

The states with the largest concentrations of employment were: California, Massachusetts, Texas, New York and Arizona. Arizona's high ranking is attributed to the presence of Motorola's semiconductor operation in the Phoenix area which employs over 21,000 people. Arizona has a total of 31,000 employees in the semiconductor industry and 11,000 employees in the manufacture of electronic computers. Another western state of interest is Colorado which has over 10,000 employees in the manufacture of electronic computers.

Table 3

Major Electronics Companies in Utah
(1990)

Company	Employment	Product or Function
1. Unisys	3,000	Primarily engineering functions; systems integrator, electronic warfare, command control communication links.
2. National Semiconductor	1,250	Semiconductors; wafer fabrication.
3. Evans and Sutherland	1,200	Special purpose digital computers, flight simulation systems.
4. Signetics	1,100	Semiconductors; wafer fabrication.
5. Varian-Eimac	1,000	Electronic vacuum tubes.
6. Iomega	920	High performance removable mass storage products for desk-top computers.
7. Bourns Network	520	Resistor networks.
8. EDO Western	275	Ceramic materials, polymer composite structures.
9. Sensor Controls	200	Potentiometers that control electronic impulses.
10. DOD Digitech Electronics	100	Signal processors for music industry.
11. Lundahl Inc.	100	Ultrasonic instruments, i.e., sensing level control devices, positioning devices.
12. Radix	100	Hand-held meter-reading devices.
13. Salt Lake Circuits	100	Printed circuit boards.
Total Employment	9,865	

82% of Electronic Computer and Component Employment in Utah.

New Companies in 1989

1. Everex	100	Printed circuit boards.
2. Compaq	200*	Printed circuit boards.

*200 after first year, increasing to 600 after five years.

Source: Bureau of Economic and Business Research, University of Utah, 1990.

Data on the employment concentrations of the electronic industry by state appear in Tables 5 and 6. It should be emphasized that the electronic computer (3571) employment estimate for Utah in Table 5 includes 3,000 employees of Unisys which in 1989 were reclassified to SIC 3672. Given this reclassification, Utah's share of electronic computer employment in 1989 will probably drop below 1 percent of the total U.S. electronic computer employment.

UTAH'S LABOR MARKET ADVANTAGE

Utah's labor market is the single greatest advantage for electronics companies operating in the state. Interviews with human resource managers of 19 companies revealed near unanimity regarding the cost, supply and productivity advantages of the Utah work force. A brief discussion of each advantage and supporting statistics as presented in "Electronics Target Industry Study" is given below.

Labor Costs

An electronics company in Utah has the advantage of lower labor costs and hence the potential for higher profit. State wage data collected by the U.S. Department of Labor confirm that electronics companies in Utah have significantly lower labor costs. In 1988 Utah's electronic computers and semiconductor industries had the lowest average wage rate among selected western states. Wage rates in Utah were also well below the national average for the industry. The average wage for workers in Utah's computer industry was 83 percent of the national average and only 77 percent of the national average in the semiconductor industry, Tables 7 and 8.

Table 4

Percent Distribution of Employment in the Electronics Industry

Product	Percent Distribution Utah 1989
Electronic Computers	12.8
Semiconductors	27.0
Computer Storage Devices	9.2
Electron Tubes	9.5
Printed Circuit Boards	9.9
Electronic Components	6.8
Peripherals	1.2
Other	23.6
Total	100.0

Source: Utah Department of Employment Security; Bureau of Economic and Business Research, University of Utah; and U.S. Department of Labor, *Employment and Wages*, 1988.

Table 5

Employment Distribution for Electronic Computer
(SIC 3571)

State	1988 Employment	Percent of Total Employment
Top Five States		
California	57,874	18.9
Massachusetts	47,311	15.4
New York	41,713	13.6
Minnesota	33,386	10.9
Texas	19,974	6.5
Region		
Arizona	11,058	3.6
Colorado	10,648	3.5
Utah	5,239	1.7
Total U.S. Employment	306,775	

Source: U.S. Department of Labor, *Employment and Wages, Annual Averages, 1988*, Bulletin 2341, U.S. Government Printing Office, Washington, D.C.

Labor Supply

Utah's young and expanding population combined with vocational and higher education programs provide the local electronic industry with trained manufacturing and technical personnel. Although the statistical evidence for this conclusion is limited, there is ample anecdotal evidence from the interviews conducted with human resources managers. In addition to interviews at the major electronics companies, human resource managers at six small emerging electronics companies were also interviewed to see if this group's experience with the labor market differed from larger well-established companies. The open-ended comments on the conditions of Utah labor market are summarized as follows:

The labor supply conditions for unskilled and semi-skilled workers in Utah is excellent. For some companies, however, finding technicians with specialized skills can be a problem, but this labor shortage is not unique to Utah.

The labor market dynamics between the small electronics companies and the large electronic companies is acceptable, i.e., small companies note very few instances of losing key personnel to larger Utah companies.

Internal training programs and OJT provides most of the training needs for the largest companies although many have had some experience with state vocational training programs.

Local universities provide a significant number of engineers but firms also recruit from universities beyond Utah. Wage rates for engineers are set by the national market.

Table 6

Employment Distribution for Semiconductor Industry
(SIC 3674)

State	1988 Employment	Percent of Total Employment
Top Five States		
California	64,137	24.5
Texas	43,847	16.7
Arizona	31,352	11.9
Massachusetts	18,996	7.2
New York	17,746	6.8
Region		
Colorado	3,745	1.4
Utah	3,063	1.2
Total U.S. Employment	262,277	

Source: U.S. Department of Labor, *Employment and Wages, Annual Averages, 1988*, Bulletin 2341, U.S. Government Printing Office, Washington, D.C.

Table 7

Annual Wages and Employment for Selected States in the Electronic Computers Industry (SIC 3571) 1988

State	Annual Average Wage	Annual Average Employment
Utah	$34,140	5,239
Nevada	$34,270	183
Oregon	$35,703	2,819
Colorado	$42,539	10,648
Arizona	$45,013	11,058
California	$47,151	57,874
New Mexico	(d)	
U.S. Average	$41,080	--

(d) not disclosed.
Source: *Employment and Wages: Annual Averages 1988*, Bureau of Labor Statistics, Bulletin 2341, U.S. Government Printing Office, Washington D.C. 1989.

Table 8

Average Annual Wages and Employment for Selected States in the Semiconductor Industry (SIC 3674) 1988

State[a]	Annual Average Wage	Annual Average Employment
Utah	$25,633	3,063
New Mexico	$30,016	2,462
Arizona	$32,535	31,352
Colorado	$33,634	3,745
Oregon	$35,345	6,807
California	$36,587	64,137
U.S. Average	$33,488	--

[a]Industry data for Nevada are suppressed due to the small number of establishments in the semiconductor industry.

Source: *Employment and Wages: Annual Averages 1988*, Bureau of Labor Statistics, Bulletin 2341, U.S. Government Printing Office, Washington D.C. 1989.

Table 9
Selected Data on Utah's Higher Education Programs
in Electrical Engineering, Computer Science and Related Programs

Institution	Number of Faculty[1]	Degrees Awarded 1988			
		AS/AAS*	BS	MS	Phd
University of Utah					
Computer Science	28	-	37	19	4
Electrical Engineering	31	-	80	54	6
Materials Science	31	-	16	7	2
Mechanical Engineering	46	-	72	19	5
Total	136	-	205	99	17
Brigham Young University					
Electrical and Computer Engineering	22	-	116	25	3
Mechanical Engineering	18	-	92	22	5
Industrial Education	11	-	63	7	-
Technology	22	-	177	21	-
Computer Science	22	-	125	18	-
Total	95	-	537	93	8
Utah State University					
Electrical Engineering	25	-	31	27	3
Mechanical Engineering	12	-	44	11	-
Computer Science	13	-	42	36	-
Total	50	-	117	74	3
Weber State College					
Electronic Engineering Technology	9	0/11	97	-	-
Manufacturing Engineering Technology	13	0/3	14	-	-
Total	22	0/14	111	-	-
College of Southern Utah					
Mathematics/Computer Science	3	-	7	-	-
Electronics	2	0/10	-	-	-
Industry Technology	2	-	20	-	-
Total	7	0/10	27	-	-
Salt Lake Community College					
Computer Systems	24	68/153	-	-	-
Pre-Engineering	3	17/0	-	-	-
Total	27	85/153	-	-	-
Utah Valley Community College					
Computer Information System	5	8/17	-	-	-
Electrical and Automation Technology	7	2/34	-	-	-
Electronics Technology	16	42/48	-	-	-
Total	28	52/99	-	-	-
Grand Total	365	137/276	1,033	266	28

*Associate of Science/Applied Associate of Science.
[1] Does not include lecturers and emeriti.

In some cases the recruiting of professionals to Utah is hampered by the size of the Utah labor pool, i.e., a prospect may be discouraged by the limited number of other professional opportunities in the electronics industry in Utah.

Nearly all of the firms interviewed emphasized the importance of Utah's system of higher education in meeting a significant share of their professional and technical labor requirements. Each year Utah's four universities, two four-year colleges and two community colleges award degrees to over 1,700 graduates in electrical engineering, computer science and related programs, Table 9.

A portion of these graduates will find employment in Utah's electronics firms but it is impossible for the state's electronics industry to absorb all of these graduates. An occupational breakdown of the major electronics companies in Utah shows why. There are nearly 3,500 engineers, scientists, computer scientists and technicians currently employed in the electronics industry in Utah, Table 10. It takes only two years for the state's system of higher education to supply about the same number of engineers, scientists and technicians as are now employed by the electronics industry statewide. Therefore, most of the engineering and science graduates must find employment in other sectors of the Utah economy or seek employment out-of-state.

Table 10

Employment by Occupations in Utah's Major Electronics and Software Companies[a]

Occupation	Number	Percent of Total Employment
Scientists	44	.5
Engineers	1,735	19.0
Computer Scientists	757	8.3
Technicians	959	10.5
Hourly Manufacturing	3,376	37.0
Administrative and Support	2,250	24.7
Total	9,121	100.0

[a]Employment data from the 9 largest electronics companies in Utah.

Source: Bureau of Economic and Business Research, University of Utah.

Labor Productivity

Although labor cost and supply are meaningful advantages, productivity ranks as Utah's greatest labor market asset. Most of the human resource managers interviewed agreed that their Utah operations were among the most productive operations in their company. High productivity translates into lower turnover rates, lower absenteeism, the ability to learn new skills and for the firm, higher profitability. Cultural and educational factors are most often cited as the underlying cause for Utah's productivity advantage. Utah ranks second in the nation in percent of adult population that has completed high school (80 percent, compared to a national average of 66.5 percent) and fourth in percent of adult population with four or more years of college education.

Training programs offered by the Division of Vocational Education help to improve the productivity of Utah workers. The Division's Custom Fit Program provides tailored training for new or expanding companies. Custom Fit provides classroom training, on-the-job training, curriculum development, testing/assessment, and business revitalization. Training takes place at the business, educational institution or any agreed-on site. The Division's pre-employment training program has provided customized training for such electronics companies as Unisys, Signetics, National Semiconductor, Bourns Network and Iomega Corporation.

CONCLUSION

Despite Utah's labor market advantages, employment in the electronics industry continues to decline and the prospects for 1990-1991 are not encouraging. State-wide employment in the industry could fall below 11,000 workers for the first time in over a decade, as the slowdown in GNP and possibly a recession cut into the industry's growth rate and provoke further employment layoffs.

Utah Business Statistics

UTAH DATA	Jun. 1989	Jun. 1990	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
Total Personal Income (seasonally adjusted) (mil. of dol.) (qtly.)	22,061	NA	NA	NA	21,381	NA
New Corporations (no.)	466	476	2.1%	494	451	9.4%
New Car, Truck, and Motor Home Sales (no.)	5,233	NA	NA	NA	5,101	NA
Agriculture						
Average Prices Recorded by Farmers (dol.)						
Beef Steers and Heifers (cwt) (thous.)	70.00	76.50	9.3%	74.57	70.37	6.0%
Lambs (cwt)	65.50	47.30	-27.8%	55.08	60.99	-9.7%
Milk Wholesale (cwt)	11.40	13.00	14.0%	13.36	11.90	12.3%
Alfalfa Hay, Baled (per ton)	79.00	86.00	8.9%	85.50	80.42	6.3%
Cattle Slaughtered (live weight) (thous. of lbs.)	50,642	48,485	-4.3%	47,655	47,365	0.6%
Construction						
Total Construction (thous. of dol.) 1	83,104.2	83,696.4	0.7%	81,538.7	67,669.8	20.5%
Residential	42,998.9	53,426.3	24.3%	41,308.1	33,411.4	23.6%
Nonresidential	26,823.2	21,505.4	-19.8%	24,059.0	21,562.7	11.6%
Additions, Alterations, and Conversions	13,282.2	8,764.8	-34.0%	16,171.6	12,695.8	27.4%
Total Permit Construction (thous. of dol.) 2	105,034.9	107,031.5	1.9%	89,276.8	73,927.0	20.8%
Residential	43,304.9	60,973.6	40.8%	43,502.5	34,617.4	25.7%
Nonresidential	43,498.5	30,552.6	-29.8%	30,688.1	25,413.4	20.8%
Additions, Alterations, and Repairs	18,231.5	15,505.3	-15.0%	15,086.3	13,896.1	8.6%
New Dwelling Units (no.)	547	709	29.6%	535	456	17.4%
Employment						
Civilian Labor Force (thous.)	794.2	796.6	0.3%	795.6	773.0	2.9%
Total Employed Persons	758.3	758.0	-0.0%	761.4	736.1	3.4%
Unemployed Persons	35.9	38.6	7.5%	34.2	36.5	-6.4%
Percent Total Labor Force	4.5	4.8	6.7%	4.3	4.8	-10.0%
Employees on Nonagricultural Payrolls (thous. of jobs)	697.7	731.0	4.8%	706.7	675.2	4.7%
Manufacturing	103.9	106.7	2.7%	104.2	101.4	2.8%
Mining	8.2	8.8	7.3%	8.5	7.9	7.2%
Contract Construction	27.9	28.9	3.6%	26.7	25.5	4.5%
Transportation, Communication, and Utilities	41.0	43.3	5.6%	42.1	40.3	4.2%
Wholesale Trade	39.0	40.9	4.9%	39.3	37.1	6.0%
Retail Trade	128.5	137.4	6.9%	131.9	124.1	6.3%
Finance, Insurance, and Real Estate	33.4	34.4	3.0%	33.6	33.2	1.1%
Services 3	167.8	179.7	7.1%	172.7	161.4	7.0%
Federal Government	41.0	40.6	-1.0%	40.3	39.7	1.5%
State Government 4	39.7	41.5	4.5%	41.1	39.2	4.9%
Local Government 4	67.5	68.8	1.9%	66.3	65.4	1.5%
Average Weekly Hours						
Manufacturing	39.7	39.5	-0.5%	40.0	40.3	-0.8%
Mining	40.9	42.7	4.4%	41.8	40.5	3.4%
Wholesale Trade	37.0	37.3	0.8%	36.4	37.5	-2.9%
Retail Trade	27.5	27.0	-1.8%	26.9	27.4	-1.9%
Amount of Unemployment Compensation (thous. of dol.)	4,118.9	4,097.2	-0.5%	4,927.4	5,295.0	-6.9%
Finance						
Savings, Savings and Loan Association (mil. of dol.)	2,197.9	1,785.0	-18.8%	2,014.2	2,309.0	-12.8%
Tax Collections by the State of Utah (thous. of dol.)						
Total Tax Collections	167,585.7	160,366.6	-4.3%	162,526.3	147,806.5	10.0%
Sales and Use Tax	71,666.5	76,359.3	6.5%	58,799.8	55,588.4	5.8%
Motor Fuel Tax	19,463.2	11,312.3	-41.9%	11,039.6	10,860.3	1.7%
Individual Income Tax	27,903.4	28,561.3	2.4%	54,073.2	50,656.5	6.7%
Corporation Franchise Tax	12,619.9	6,869.0	-45.6%	3,826.5	7,331.5	-47.8%
Production						
Crude Oil to Refineries (thous. of bbls.)	3,444.1	3,741.2	8.6%	3,557.4	4,368.8	-18.6%
Crude Oil (thous. of bbls.)	2,052.5	2,270.1	10.6%	2,345.3	2,505.3	-6.4%
Natural Gas (mil. of cu. ft.)	16,460.1	26,392.1	60.3%	24,764.4	22,503.7	10.0%
Coal (thous. short tons)	1,549.0	1,904.0	22.9%	1,847.3	1,566.2	17.9%
Tourism/Travel						
Air Passengers (total no. on and off)(S.L. Int'l Airport)	1,111,024	1,106,525	-0.4%	1,005,773	918,624	9.5%
Highway Traffic Count Across State Lines	40,741	43,866	7.7%	42,444	NA	NA
Transient Room Taxes (thous. of dol.)	1,054.5	1,442.4	36.8%	569.7	575.2	-1.0%
Visits, State, Nat'l. Parks, Monuments (thous.)	1,920.0	2,079.2	8.3%	1,137.2	1,107.3	2.7%
Utilities						
Telephone Lines in Service (Mt. Bell)(Residential)	497,447	514,059	3.3%	507,906	493,952	2.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	186,818	194,979	4.4%	189,549	183,830	3.1%
Electric Customers (Residential)	482,800	490,216	1.5%	487,098	480,284	1.4%
Electric Customers (Commercial)	47,611	49,005	2.9%	49,129	47,458	3.5%
Natural Gas Customers (Residential & Commercial)	471,678	485,507	2.9%	480,073	465,461	3.1%
Natural Gas Customers (Industrial)	570	572	0.4%	568	558	1.7%

Utah Business Statistics

UTAH DATA	Jun. 1989	Jun. 1990	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
Davis County						
Non-Ag. Employment (thous.)	58.1r	61.1f	5.2%	57.2	55.0	4.1%
Unemployment Rate	4.2r	4.8	14.3%	4.0	4.3	-6.6%
Auth. Permit Construction (thous. of dol.)	23,074.8	12,425.0	-46.2%	9,971.3	9,205.5	8.3%
New Dwelling Units (no.)	78	99	26.9%	76	63	20.1%
Postal Receipts (thous. of dol.)	530.0	561.9	6.0%	642.6	516.2	24.5%
Electric Customers (Residential)	48,416	50,077	3.4%	49,596	48,499	2.3%
Electric Customers (Commercial)	3,519	3,667	4.2%	3,665	3,572	2.6%
Natural Gas Customers (Residential)	51,742	52,929	2.3%	52,386	51,131	2.5%
Natural Gas Customers (Industrial)	56	57	1.8%	56	54	2.9%
Telephone Lines in Service (Mt. Bell)(Residential)	56,859	60,343	6.1%	58,627	56,094	4.5%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	11,958	12,839	7.4%	12,415	11,663	6.4%
Salt Lake County						
Non-Ag. Employment (thous.)	356.7r	371.4f	4.1%	361.5	346.0	4.5%
Unemployment Rate	4.2r	4.5	7.1%	3.9	4.4	-11.1%
Auth. Permit Construction (thous. of dol.)	33,780.4	40,551.4	20.0%	38,012.6	31,313.2	21.4%
New Dwelling Units (no.)	181	209	15.5%	187	171	9.2%
Postal Receipts (thous. of dol.)	7,592.0	7,349.2	-3.2%	8,066.5	8,302.1	-2.8%
Electric Customers (Residential)	241,925	245,681	1.6%	244,800	241,546	1.3%
Electric Customers (Commercial)	20,721	21,202	2.3%	21,076	20,672	2.0%
Natural Gas Customers (Residential)	224,162	228,162	1.8%	226,548	222,573	1.8%
Natural Gas Customers (Industrial)	245	244	-0.4%	245	240	2.3%
Telephone Lines in Service (Mt. Bell)(Residential)	234,287	242,419	3.5%	239,041	232,440	2.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	113,044	118,304	4.7%	115,217	111,912	3.0%
Utah County						
Non-Ag. Employment (thous.)	85.6r	92.3f	7.8%	89.2	84.3	5.8%
Unemployment Rate	4.4r	4.6	4.5%	3.9	4.1	-6.1%
Auth. Permit Construction (thous. of dol.)	19,792.8	19,864.6	0.4%	13,421.8	11,903.4	12.8%
New Dwelling Units (no.)	105	142	35.2%	88	69	26.8%
Postal Receipts (thous. of dol.)	1,319.5	1,807.3	37.0%	1,630.6	1,326.9	22.9%
Electric Customers (Residential)	53,728	53,786	0.1%	53,256	52,846	0.8%
Electric Customers (Commercial)	5,918	6,522	10.2%	6,776	5,990	13.1%
Natural Gas Customers (Residential)	62,874	64,285	2.2%	63,759	62,430	2.1%
Natural Gas Customers (Industrial)	73	74	1.4%	73	71	2.8%
Telephone Lines in Service (Mt. Bell)(Residential)	65,481	66,203	1.1%	66,444	65,573	1.3%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	21,598	20,945	-3.0%	20.378	20,929	-2.6%
Weber County						
Non-Ag. Employment (thous.)	64.7r	67.4f	4.2%	65.9	63.4	3.9%
Unemployment Rate	5.5r	6.2	12.7%	5.2	5.7	-9.1%
Auth. Permit Construction (thous. of dol.)	7,740.4	6,526.8	-15.7%	6,627.8	5,147.3	28.8%
New Dwelling Units (no.)	44	60	36.4%	45	44	3.8%
Postal Receipts (thous. of dol.)	596.2	621.1	4.2%	706.4	684.8	3.2%
Electric Customers (Residential)	54,063	54,647	1.1%	54,497	53,906	1.1%
Electric Customers (Commercial)	4,970	5,035	1.3%	5,057	4,978	1.6%
Natural Gas Customers (Residential)	50,440	51,234	1.6%	50,932	50,218	1.4%
Natural Gas Customers (Industrial)	86	83	-3.5%	84	84	-0.2%
Telephone Lines in Service (Mt. Bell)(Residential)	47,345	46,990	-0.7%	47,191	46,940	0.5%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	12,288	13,161	7.1%	12,725	12,132	4.9%

1 Obtained from U.S. Bureau of the Census Construction Statistics Division.
2 Obtained from *Utah Construction Report*.
3 Includes services by nonprofit and religious organizations.
4 Includes public schools and college institutions.

NA Not Available
r Revised
f Forecast

Sources:

Personal Income	U.S. Department of Commerce, Bureau of Economic Analysis.
New Corporations	Utah Secretary of State.
New Car and Truck Sales	Utah State Tax Commission, Economic and Statistical Unit.
Agriculture	U.S. Department of Agriculture, Utah Agricultural Statistics Service, *Utah Agriculture*.
Construction Data	U.S. Bureau of the Census and Bureau of Economic and Business Research, *Utah Construction Report*.
Employment Data	Utah Department of Employment Security.
Savings Information	Utah Savings and Loan Institutions.
Tax Collections	Utah State Tax Commission.
Crude Oil Production	Utah Department of Oil, Gas, and Mining and Area Oil Refineries.
Natural Gas Production	Utah Department of Oil, Gas, and Mining.
Coal Production	U.S. Department of Energy.
Air Passengers	Salt Lake City International Airport, Statistics Division.
Highway Traffic Count	Utah Department of Transportation.
Visits to State and National Parks and Monuments	U.S. Forest Service, Utah State Parks and Recreation Department.
Utilities Data	Cooperating Utah Utility Companies.
Postal Receipts	Postmasters in Davis, Salt Lake, Utah, and Weber Counties.

Bureau of Economic and Business Research
University of Utah
Salt Lake City, Utah 84112
Return Postage Guaranteed
(Non-Profit Organization)

Non-Profit Org.
U.S. Postage Paid

Permit No. 1529
Salt Lake City, Utah

NATIONAL DATA	Jun. 1989	Jun. 1990	% Change from Year Ago	12-Month Average This Year	12-Month Average Last Year	12-Month Average % Change
U.S. Gross National Product (seasonally adjusted) (bil.) (qtly.)	5,174.0	5,451.6	5.4%	5,338.7	5,050.8	5.7%
Total Personal Income (seasonally adjusted) (bil. of dol.)	4,372.5	4,639.5	6.1%	4,514.6	4,240.9	6.5%
Industrial Production Indexes (seasonally adjusted) (1987=100)	108.4	109.8	1.3%	108.4	107.3	1.0%
New Plant and Equipment Expenditures by Business (bil.) (qtly.)	470.9	506.8	7.6%	494.7	452.0	9.4%
Net Exports of Goods and Services (bil.) (qtly.)	−51.3	−27.0	−47.4%	−35.4	−59.9	−40.9%
Exports of Goods and Services (bil.) (qtly.)	628.8	661.7	5.2%	647.4	595.1	8.8%
Imports of Goods and Services (bil.) (qtly.)	680.0	688.7	1.3%	682.8	655.0	4.2%
Index of Leading Indicators (1982=100)	144.0	146.0	1.4%	145.0	144.5	0.3%
Price Indexes						
Consumer Price Indexes (not seasonally adjusted) (1982-84=100)						
CPI-U (All Urban Consumers) All Items	124.1	129.9	4.7%	127.0	121.2	4.8%
CPI-U (All Urban Consumers) Food & Beverages	124.9	131.7	5.4%	128.6	121.8	5.6%
CPI-U (All Urban Consumers) Housing	122.9	128.3	4.4%	125.6	120.6	4.1%
CPI-U (All Urban Consumers) Transportation	115.9	118.2	2.0%	116.0	111.8	3.8%
CPI-U (All Urban Consumers) Medical Care	148.5	161.9	9.0%	155.6	143.6	8.4%
CPI-U (All Urban Consumers) Energy	99.0	99.5	0.5%	96.1	91.9	4.6%
Producer Price Index (not seasonally adjusted) (1982=100)						
Producer Price Index, All Finished Goods	114.1	117.9	3.3%	115.9	110.9	4.4%
GNP Price Deflator (1982=100) (qtly.)	125.8	130.9	4.1%	128.8	124.0	3.9%
Civilian Employment (seasonally adjusted)						
Total Civilian Labor Force (mil.)	124.1	124.8	0.6%	124.5	122.8	1.3%
Total Civilian Employment (mil.)	117.5	118.4	0.8%	117.9	116.3	1.4%
Unemployment Rate	5.3	5.2	−1.9%	5.3	5.3	−0.5%
Construction						
Total Construction (mil. of dol.)	26,387.4	23,027.4	−12.7%	20,606.7	21,848.2	−5.7%
Residential	11,973.4	10,433.0	−12.9%	9,551.7	10,232.6	−6.7%
Nonresidential	9,343.5	7,902.6	−15.4%	7,232.9	7,688.7	−5.9%
Non-Building	5,070.5	4,691.8	−7.5%	3,822.1	3,926.9	−2.7%
New Dwelling Units (no.)	133,256	108,400	−18.7%	104,987	119,121	−11.9%
Interest Rates						
Federal Funds Rate	9.53	8.29	−13.0%	8.55	8.91	−4.0%
Short Term (3-month Treasury bill rate)	8.22	7.74	−5.8%	7.75	7.92	−2.1%
Long Term (30-year Treasury bond yields)	8.40	8.62	2.6%	8.43	9.06	−7.0%
Prime Rates Charged by Banks on Short-term Business Loans (avg.)	11.07	10.00	−9.7%	10.30	10.56	−2.4%
Mortgage Rates (new homes)	10.09	9.80	−2.9%	9.78	9.28	5.4%

Sources: *Survey of Current Business*, U.S. Department of Commerce: U.S. Gross National Product, Total Personal Income, Industrial Production Indexes, New Plant and Equipment Expenditures by Business, Export/Import Data, Index of Leading Indicators, GNP Price Deflator, National Employment Data, Interest Rates.

F.W. Dodge Report, McGraw-Hill: National Construction Data.

U.S. Department of Labor, Bureau of Labor Statistics: Consumer Price Indexes, Producer Price Index.

Chase N. Peterson, *President, University of Utah*
John Seybolt, *Dean, Graduate School of Business*

BUREAU OF ECONOMIC AND BUSINESS RESEARCH

R. Thayne Robson, Director
Frank C. Hachman, Associate Director

graduate school of business
bureau of economic and business research
university of utah

STAFF OF THE BUREAU OF ECONOMIC AND BUSINESS RESEARCH

Office Staff

Mari Lou Wood, Office Manager
Cathy Crawford, Administrative Assistant
Diane Gillam, Associate Accountant
Lee Carberry, Administrative Secretary
Gaylene Roethel, Administrative Secretary

Senior Research Economists

Boyd L. Fjeldsted

Production Staff

James B Peters, Graphics

Research Analysts, Research Assistants and Programmers

Terry Brewer
Jan Crispin-Little
Jade Crittenden
Michael Fordham
Paul Joslin
Cindy Lewis
Gary Ricks
Austin Sargent
James Wood